# Separation and characterization of asphaltenes from Saudi Arabian crudes

**Misbah-ul-Hasan[*], M. Nahid Siddiqui and M. Arab**

Department of Chemistry, University of Petroleum and Minerals, Dhahran, Saudi Arabia

Received 2 April 1987; revised 18 January 1988. Available online 12 August 2003.

## Abstract

The separation and characterization of asphaltenes from the four marketable Saudi Arabian crudes have been carried out by various analytical techniques. The asphaltenes were precipitated by addition of excess *n*-pentane to the heavy ends of each crude; Arab heavy crude gave the greatest yield. Elemental analysis showed the greatest amount of nitrogen, indicating the presence of basic functional groups, in Arab heavy crude and the greatest amount of oxygen, indicating the presence of acidic functional groups, in Arab Berri crude. Arab heavy asphaltenes also showed the highest molecular weight and phenol interaction value. In a spot test the amount of *n*-pentane or *n*-heptane required for the precipitation of asphaltenes was greatest for Arab Berri crude. Infrared spectra showed characteristic frequencies indicating the presence of several types of functional groups.

**Author Keywords:** asphaltenc; crude oil; chemical characterization